

## **REMARKS**

Entry of the foregoing, reexamination and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

As correctly noted in the Office Action Summary, claims 24-27, 30-34 and 37-43 were pending, with claims 40-43 being withdrawn from consideration. By the present response, claims 24, 25 and 41 have been amended, claim 38 has been canceled, and claims 44-45 have been added. Thus, upon entry of the present response, claims 24-27, 30-34, 37, 39, 44 and 45 remain pending and await further consideration on the merits. Claims 40-43 have been withdrawn.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: page 6, lines 24-29 and the original claims.

### ***CLAIM REJECTIONS UNDER 35 U.S.C. §112***

Claim 25 stands rejected under 35 U.S.C. §112, second paragraph, on the grounds set forth in paragraph 5 of the Official Action.

By the present response, applicants have amended claim 25 in a manner which addresses the above-noted rejection. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

### ***CLAIM REJECTIONS UNDER 35 U.S.C. §103***

Claims 24-27, 30-34, 37 and 39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,025,421 to Atarashi et al. (hereafter

"*Atarashi et al.*") in view of JP 2003-166124 to Kowaki et al. (hereafter "*Kowaki et al.*") and further in view of U.S. Patent No. 4,233,199 to Abolins et al. (hereafter "*Abolins et al.*") on the grounds set forth in paragraph 6 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

By the present response, the substance of dependent claim 38 has been added to independent claim 24. Since the substance of dependent claim 38 is not rejected on the above-noted grounds, claim 24, as amended, is also distinguishable over the above-noted three-reference combination. Thus, the above-noted grounds for rejection are not applicable to amended claim 24.

Claim 38 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Atarashi et al.* in view of *Kowaki et al.* and *Abolins et al.* as applied above, and further in view of *Plastics Engineering Manufacturing and Data Handbook* by Rosato et al. (hereafter "*Rosato et al.*") on the grounds set forth in paragraph 7 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

The present invention is directed to yarns, fibers or filaments which possess fire resistance and are made of particular polyamide material. As discussed, for example, on page 2 of the present specification, organophosphorus compounds have been added to thermoplastics before conversion into yarns or fibers. However, the addition of such compounds has proven difficult due to the relatively high conversion temperatures and inner action with a viscous medium at high temperatures. Other techniques for imparting flame resistance have included the treatment of articles or surfaces with compositions or finishes comprising flame retardant compounds. However, such conventional treatments require specific treatment of the surfaces of the material and the particular compounds which are

deposited or trapped on the surface are capable of being removed during cleaning.

Thus, one objective of the present invention is to incorporate a flame-retardant compound into a thermoplastic material during the process of manufacture or formation of yarns, fibers or filaments, while avoiding the difficulties noted above with respect to conventional techniques for adding such flame retardant compounds.

A yarn or fiber formed according to the principles of the present invention is set forth in amended claim 24. Amended claim 24 recites:

24. *Yarns or fibres made of polymer, said polymer being selected from the group consisting of: polyamide 6, polyamide 6,6, polyamide 4, polyamide 11, polyamide 12, polyamides 4,6, polyamide 6,10, polyamide 6,12, polyamide 6,36, or polyamide 12,12, said polymer comprising an additive possessing flame-retardant properties composed of at least particles of a solid substrate on which a flame-retardant compound is adsorbed, wherein said substrate is in the form of porous granules or agglomerates before being added to the polymer and said granules or agglomerates exhibit a pore volume of at least 0.5 ml/g.*

As admitted, for example, on page 7 of the Official Action, the above-noted four-reference combination of prior art fails to teach each and every element required by claim 24. Namely, the substrate recited in claim 24 specifies that the substrate is in the form of porous granules or agglomerates which exhibit a pore volume of at least 0.5 ml/g. By contrast, neither *Atarashi et al.*, *Kowaki et al.*, or *Abolins et al.* disclose or teach this feature. Similarly, *Rosato et al.* also fails to teach this feature. In fact, it is not even alleged that *Rosato et al.* cures this deficiency.

Instead, the grounds for rejection rest upon the theory that the claimed pore volume of the support "is inherent to *Atarashi et al.* in view of *Kowaki et al.* and *Abolins et al.*" This theory of inherency is based on the alleged "use of like materials." It is respectfully submitted that the grounds for rejection fall far short of

establishing the inherency of the missing feature, and rests upon a factually and inaccurate premise.

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. See, e.g., M.P.E.P. §2142. All elements or limitations of a claim must be considered in evaluating the obviousness of that claim relative to the prior art. See, e.g., M.P.E.P. §2143.03. This legal conclusion must be reached on the basis of the facts gleaned from the prior art. See, e.g., M.P.E.P. §2142.

When assertions are made based upon features that are not expressly disclosed in the prior art, the Federal Circuit has repeatedly stated that in order to establish the inherency of the missing element it must be shown that the missing element must necessarily be present in the reference, and would be recognized as such by those persons of ordinary skill in the art. *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 20 USPQ2d 1746, 1749-50 (Fed. Cir. 1991; *In re Oelrich*, 666 F.2d 578,581, 212 USPQ 323, 326 (C.C.P.A. 1981) ("inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient"); *Standard Oil Co. v. Montedison, S.p.A.*, 664 F.2d 356, 372, 212 USPQ 327, 341 (3rd Cir. 1981) (for a claim to be inherent in the prior art it "is not sufficient that a person following the disclosure sometimes obtain the result set forth in the [claim]; it must invariably happen").

If rejecting a claim requires reliance upon the alleged inherent features of the prior art, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic

necessarily flows from the teachings of the applied prior art. *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

When considered in view of the above-noted controlling legal principles, it is quite clear that the grounds for rejection are completely deficient with respect to meeting the necessary burden of establishing the inherency of the missing feature. As readily understood by those of ordinary skill in the art, pore volume is a morphological property. The morphology of materials can be affected or influenced by a number of different factors, the majority of which have nothing to do with chemical composition. Such is especially true of inorganic materials such as precipitated silica. The morphology of materials such as precipitated silica is directly related to the process by which it is formed. Thus, it is often the case that such silicas, although very similar in chemical composition, exhibit entirely different morphological properties, such as their pore volume. The grounds for rejection fail to consider the realities modern day processing techniques and the invariable influence they have on the resulting morphology of the product produced thereby. As such, the logic behind the grounds for rejection is ill founded.

For at least the reasons noted above, there is not basis whatsoever to infer pore volume of at least 0.5 ml/g from any disclosure or teaching or any of the four applied prior art references. Thus, the rejection is improper and should be withdrawn.

The proposed four-reference combination is deficient in the number of additional respects.

*Atarashi et al.* is directed to flame retardant thermoplastic resin compositions having improved humidity resistance and heat resistance. As admitted in the

grounds for rejection, *Atarashi et al.* fails to disclose a yarn or filament. In addition, the key to the invention described by *Atarashi et al.* is the surface treatment of an inorganic filler with a specific phosphate (e.g., col. 2, lines 3-7). It is noted that *Atarashi et al.* does not disclose adsorption of the phosphate by the inorganic filler. Rather, only a surface treatment of the inorganic filler with the phosphate is described. In this regard, it is clear from the surface treatment techniques described by *Atarashi et al.* that in fact the phosphate material cannot be adsorbed by the inorganic filler. See, e.g., col. 3, lines 56 - col. 4, line 7

By contrast, the presently claimed invention requires a substrate on which a flame retardant compound is adsorbed. In order to satisfy the requirements of the presently claimed invention, one would have to modify the invention described by *Atarashi et al.* in a manner which would impermissibly destroy the disclosed operability thereof, and change the fundamental or principle mode of operation thereof. As clearly set forth in M.P.E.P. §2143.01:

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) . . .

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Thus, the proposed four-referenced combination is improper because the proposed modification of *Atarashi et al.* is clearly inappropriate and runs contrary to controlling legal precedent concerning the law of obviousness.

*Kowaki et al.* is directed to flame-retardant polyester based fiber and artificial hair formed from this material. The disclosure of *Kowaki et al.* is limited to treatment of polyester fibers. See, e.g., paragraph [0001] of *Kowaki et al.* By contrast, claim 24 is directed to yarns or fibers formed from a polyamide. In contrast, *Kowaki et al.* fails to teach, or even suggest, yarns or filaments formed from a polyamide. Instead, *Kowaki et al.* is related solely to the treatment of polyester fibers. Thus, one of ordinary skill in the art seeking a polyamide fiber or yarn composition would not have turned to the disclosure of *Kowaki et al.* in the first place.

In addition, *Kowaki et al.* teaches utilization of an entirely different mechanism for providing flame retardant properties. Namely, *Kowaki et al.* teaches providing fibers with flame retardant properties through copolymerization during spin melting. *Kowaki et al.* does so without use of any sort of filler material whatsoever. Thus, *Kowaki et al.* suggests to one of ordinary skill in the art the addition of a flame retardant substance to a base polymer composition during spin melting, while omitting any solid substrate or carrier therefore. As such, the teachings of *Kowaki et al.* would lead one of ordinary skill in the art away from this aspect of the presently claimed invention, as recited in claim 24 above.

*Abolins et al.* is directed to flame resistant thermoplastic compositions. However, *Abolins et al.* is not directed to yarns or filaments. In addition, *Abolins et al.* is directed to thermoplastic compositions based on styrene and based on a combination of styrene and polyphenylene ester resins. By contrast, the presently claimed invention is directed to a yarn or filament. Moreover, the presently claimed invention is directed to a yarn or filament formed from particular types of polyamide resins. Thus, the disclosure of *Abolins et al.* is not relevant to the yarn or filament

recited by the presently claimed invention. *Abolins et al.* also fails to cure the deficiencies previously noted above in connection with *Atarashi et al.* and *Kowaki et al.*

*Rosato et al.* simply identifies a number of known polyamides. However, *Rosato et al.* contains no disclosure whatsoever concerning yarns or fibers provided with flame resistant properties. The disclosure of *Rosato et al.* is made relevant only through the use of a hindsight reconstruction of the prior art utilizing applicants' disclosure as a guide. In addition, *Rosato et al.* clearly fails to cure any of the deficiencies previously noted above in connection with the principle three-referenced combination of prior art.

Thus, for at least these additional reasons, the yarns or fibers recited by amended claim 24 are not rendered obvious by the proposed four-referenced combination of prior art. Thus, reconsideration and withdrawal of the rejection is respectfully requested.

The remaining claims depend from claim 24. Thus, these claims are also distinguishable over the above-mentioned four-referenced combination for at least the same reasons noted herein.

Newly presented claims 44 and 45, which corresponded to the elected invention, also depend from claim 24. Thus, these new claims are also distinguishable over the applied prior art for at least the same reasons noted above.



**CONCLUSION**

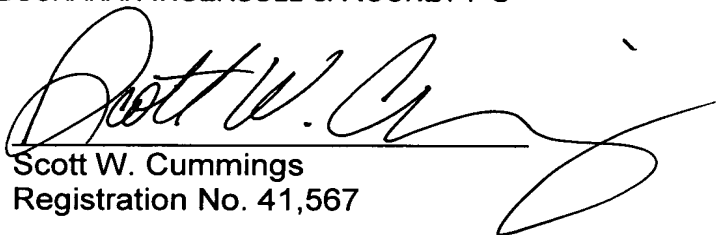
From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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